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ENGLISH NOUN INFLECTION AND RELATED MATTERS FROM A GENERATIVE SEMANTIC POINT OF VIEW.

BY- CHAFE, WALLACE L.
CALIFORNIA UNIV., BERKELEY

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THIS PAPER DEALS WITH THE SEMANTIC PHENOMENA WHICH UNDERLIE THE SURFACE STRUCTURE OCCURRENCE (OR NONOCCURRENCE) IN THE NEIGHBORHOOD OF ENGLISH NOUNS OF SUCH ITEMS AS THE DEFINITE AND INDEFINITE ARTICLES AND THE PLURAL SUFFIX. THE INFLECTION OF ENGLISH NOUNS IS DISCUSSED IN SEMANTIC TERMS. RULES ARE GIVEN FOR THE GENERATION OF THESE INFLECTIONS IN SEMANTIC STRUCTURE, AND FOR THEIR SUBSEQUENT CONVERSION INTO SURFACE STRUCTURE. SOME RELATED SEMANTIC CHARACTERISTICS OF ADJECTIVES AND QUANTIFIERS ARE ALSO DISCUSSED. THE PAPER SEEKS TO DEMONSTRATE THAT A DESCRIPTION OF A LANGUAGE IN THESE TERMS IS NOT ONLY POSSIBLE, BUT ALSO MORE REVEALING THAN A DESCRIPTION IN TERMS OF GENERATIVE SYNTAX. (AUTHOR/AMM)

PHONOLOGY LABORATORY - DEPARTMENT OF LINGUISTICS
UNIVERSITY OF CALIFORNIA, BERKELEY

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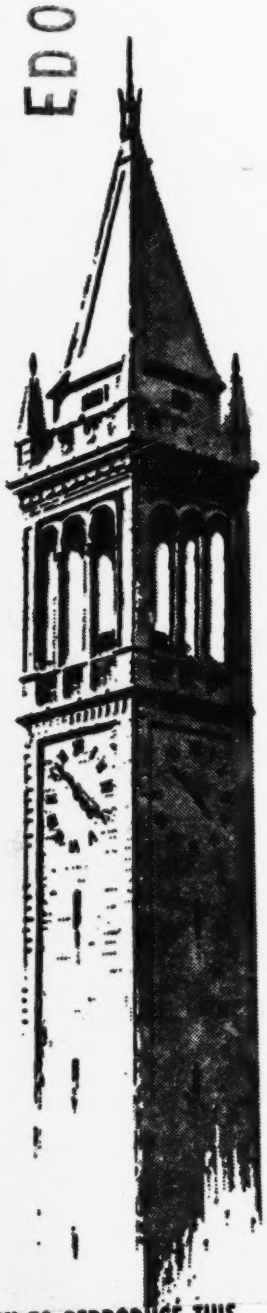

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Correspondence concerning POLA matters should be addressed to William S-Y. Wang, Department of Linguistics, University of California, Berkeley, California 94720.

English Noun Inflection and Related Matters From a Generative Semantic Point of View*

Wallace L. Chafe

University of California, Berkeley

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Abstract

The inflection of English nouns is discussed in semantic terms. Rules are given for the generation of these inflections in semantic structure, and for their subsequent conversion into surface structure. Some related semantic characteristics of adjectives and quantifiers are also discussed. The paper seeks to demonstrate that a description of a language in these terms is not only possible, but also more revealing than a description in terms of generative syntax.

This paper deals with the semantic phenomena which underlie the surface structure occurrence (or nonoccurrence) in the neighborhood of English nouns of such items as the definite and indefinite articles and the plural suffix.* A variety of related topics will also come in for discussion, although others that might have been included have had to be omitted in order that an already overlong paper not become a small monograph. Although my theoretical approach is explicitly 'generative' in the broad sense, it does not conform to the narrow use of that term which ties it to Chomskyan theory. The paper is rather intended as an illustration of a few of the possibilities and promises inherent in a developing theory which can be labeled 'generative semantics' to distinguish it from 'generative syntax'. The all-important difference is that here semantic structure is seen to be the creative part of language, the place where utterances are first put together, subsequently to be transformed by post-semantic processes into surface structure. The usual notion has been that the creative aspect of language resides in a central 'syntax', to which semantics as well as phonology are merely interpretive appendages.

This paper is adapted from a chapter of a longer work which is still in preparation. I have not succeeded in making the paper entirely self-contained, for the approach which is followed depends heavily on preceding discussion in the longer work. Some of that discussion is summarized in Chafe 1967, but not in sufficient detail to provide a full background for what follows. I hope, nevertheless, that the gist of what I have to say will not be wholly obscure, and I have tried to make it as independent of external discussion as I could.

Understanding may be enhanced if I mention at the outset that semantic structure is seen as organized on several basic axes. Those which are

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relevant here include predication (subject-predicate), complementation (verb-object), and attribution (modifier-head). Each of these axes contains two terms, as suggested by the words in parentheses in the preceding sentence. The terms consist of the major units N (nominal), V (verbal), or A (attributive), each of which may contain within it a variety of minor units. Our principal concern here will be with certain of the minor units which are found within the major unit N, the major unit which occurs as the subject of a predication, the object of a complementation, and the head of many attributions. Minor units are seen to fall into three categories. Within any particular N (or V or A) there is one single lexical unit, like elephant or Roger, which is selected from a large inventory of such units and which determines most explicitly what is being talked about. I shall call the lexical unit within an N a noun, that within a V a verb, and (in this paper) that within an A an adjective. Thus N and V are labels for terms of semantic axes, while noun and verb refer to the lexical units found within them. Closely associated with each lexical unit is a cluster of what I shall call here selectional units, with more general meanings. Their existence must be posited for a number of reasons, a few of which we shall come to appreciate below. Examples are count, animate, physical object, animal, and the like. The third type of minor unit can be called inflectional, and it is with the inflectional units that are found within N that we shall be most concerned. Examples are definite and plural. A particular cluster of inflectional units forms a kind of semantic grid which is superimposed on the lexical unit and its associated selectional units. A particular lexical unit is normally always associated with the same cluster of selectional units. The various clusters of inflectional units which may be superimposed, however, are relatively (although not

completely) independent of the lexical unit and its selectional units. We shall see that the number of possible inflectional combinations within N is quite small, although perhaps somewhat larger than has generally been imagined, and that each lexical unit together with its selectional cluster may occur with some or all of these combinations under different circumstances.

I realize that selectional units like count and inflectional units like definite have usually been regarded as 'syntactic' rather than semantic. I am not, however, responsible for past errors. The units I shall be discussing here are strictly units of semantic structure; they are as closely related to 'meaning' or human experience as phonetic units are to physical sound. In due course we shall have occasion to look at the postsemantic processes which lead from semantic structure to the more familiar surface-structure articles, suffixes, and the like.

The Basic Inflections

Let us begin by observing certain facts about the following five sentences:

(1) a. The elephant is big.

b. The elephants are big.

c. An elephant is big.

d. Elephants are big.

e. The elephant is big.

Sentences (1a) and (1e) are phonetically the same, but they are intended to represent different semantic structures. In (1a) the subject is one particular, already known elephant. In (1e) the subject is the total

undifferentiated class of all elephants. With this understanding of the first and last sentences, it may be noted that there is a clear semantic division between sentences (1a,b) on the one hand and sentences (1c,d,e) on the other. There are, in fact, three distinct, although interrelated, bases for dividing the sentences into these two classes. If all three are not immediately obvious on inspection, they should be easily recognizable when pointed out.

For one thing, the first two sentences have to do with an elephant or elephants which both the speaker and the hearer have somehow been led to identify as the focus of their attention when elephants are mentioned. This particular elephant (or these particular elephants) may, for example, already have been pinpointed in a previous sentence, or it (or they) may be identified through the nonlinguistic context--by being directly visible at the moment to both speaker and hearer, for example. The last three sentences do not have such a pinpointed subject. On this basis we can say that the subjects of (1a,b) are +definite (using the traditional term), while the subjects of (1c,d,e) are -definite. Second, the first two sentences have to do with particular members of the class of all elephants--with a proper subset of that class--while the last three sentences have to do with the entire class. On this basis we can call the subjects of (1c, d,e) +generic, while the subjects of (1a,b) can be termed -generic. Third, what is meant by <u>big</u> can be seen to differ in these two groups of sentences. In (1a,b) it is <u>big</u> with respect to elephants; the normal size of elephants is the reference point. In (1c,d,e) it is <u>big</u> with respect to an implicit norm for animals; as animals go, the elephant is a big one. We can say that the <u>calibration</u> of <u>big</u> is different in the two groups of sentences.

It might be thought that the three differences between (1a,b) and

(1c,d,e) are reducible to a single difference, but it can be demonstrated that they are to some degree independent. The following sentences, for example, indicate that the ±definite distinction does not coincide with the ±generic distinction:

(2) a. The elephant stepped on my car.

b. The elephants stepped on my car.

c. An elephant stepped on my car.

d. Elephants stepped on my car.

Here sentences (2a) and (2b) have a +definite subject, while sentences (2c) and (2d) have subjects which are -definite. But the ±generic distinction does not divide the sentences in this way. In fact, all four sentences are -generic. None of them involves the entire class of elephants; each of them has to do with a proper subset of that class. In comparing the sentences of (2) with the sentences of (1), we can see that the subjects of (2a,b) are identical with the subjects of (1a,b), being both +definite and -generic in all four sentences. The subjects of (2c,d), however, are not identical with the subjects of (1c,d). Although there is a phonetic identity--an elephant for (2c) and (1c), elephants for (2d) and (1d)--(2c,d) have -definite -generic subjects while (1c,d) have subjects which are -definite +generic. Furthermore, there is the possibility of adding an unstressed some before the subject of (2d) which is not present in the case of (1d). To distinguish this unstressed some from the other (and quite different) some which is stressed, I shall follow the practice here of writing it sm. Since it seems always to be optional, I shall enclose it in parentheses. Sentence (2d) can then be cited as (Sm) elephants stepped on my car, with the implication that sm is subject to optional deletion. Sentence (1d), however, cannot appear phonetically as *Sm elephants are big.

The sentence Some elephants are big has a different meaning from (1d); it contains the stressed some to which we shall give attention toward the end of this paper. Finally, we can note that while The elephant is big is ambiguous, The elephant stepped on my car is not. That is to say, there is no sentence (2e) to correspond to sentence (1e). Whatever it is that distinguishes (1e) from (1c,d), it can only be present in a +generic subject and is thus excluded from the wholly -generic subjects of (2).

We have just seen that the ±generic distinction is at least partially independent of the ±definite distinction. The third parameter that divided the sentences of (1) into two groups was the reference point for the meaning of big. We noted, for example, that in sentence (1d), Elephants are big, bigness is calibrated with reference to the norm for all animals. In sentence (3), however, bigness is calibrated against the norm for elephants, not that for all animals:

(3) Big elephants are dangerous.

The subject of (3) is -definite +generic like that of (1d), but the calibration of big is different in the two sentences. Either such calibration must be at least partially independent of the ±definite and ±generic distinctions, or it must depend on the operation of still other factors. We shall return to the calibration of adjectives after the other observations exemplified above have been accounted for.

From the nine sentences listed in (1) and (2) we can extract seven different inflections of the noun elephant, since the subjects of (1a,b) and (2a,b) are respectively identical. We have seen that the semantic units ±definite and ±generic account for some of the differences among these inflections. It is obvious that the distinction between +plural and -plural also plays a role. In (1b,d) and (2b,d) the focus is on more than one

member of the class of elephants; it is not in the other sentences of (1) and (2). We need in addition to account for the difference between the subject of (1e), The elephant is big, and the subjects of (1c,d), since all three are both -definite and +generic. What evidently distinguishes (1e) is the fact that the class of all elephants is regarded as an undifferentiated whole, rather than as composed of separate individuals as it is in (1c,d), or in any of the other sentences for that matter. I shall say that the elephant in (1e) is +aggregate, as opposed to the -aggregate subjects of all the other sentences of (1) and (2).

Given all these features we can present the semantic composition of the seven different nominal inflections within the matrix of Figure 1. It is possible also to illustrate these distinctions graphically as in Figure 2, with circles drawn to represent the class of all elephants. The first circle on the left represents the total (+generic) undifferentiated (+aggregate) class, as in (1e), corresponding to the last column in the matrix. The second and third circles represent the total (+generic) but differentiated (-aggregate) class. The arrow in the second circle (1c) is meant to indicate that the meaning is -plural; one member of the class is focused on, but it may be any member whatsoever. Which member it is makes no difference. In the third circle (1d), where there is plurality, all the members of the class are regarded together. These two circles correspond to the fifth and sixth columns of the matrix. The fourth and fifth circles represent the -generic situation, and again differ in being -plural (2c) and +plural (2d) respectively. They correspond to the third and fourth columns of the matrix. Here only part of the total class of elephants is involved. The sixth and seventh circles are parallel to those just preceding, but the presence of +definite rather than -definite is

definite	+	the elephant (1a,2a)
generic	-	
aggregate	-	
plural	-	
definite	+	the elephants (1b,2b)
generic	-	
aggregate	-	
plural	+	
definite	-	an elephant (2c)
generic	-	
aggregate	-	
plural	-	
definite	-	(sm) elephants (2d)
generic	-	
aggregate	-	
plural	+	
definite	-	an elephant (1c)
generic	+	
aggregate	-	
plural	-	
definite	-	elephants (1d)
generic	+	
aggregate	-	
plural	+	
definite	-	the elephant (1e)
generic	+	
aggregate	+	
plural	-	

Figure 1

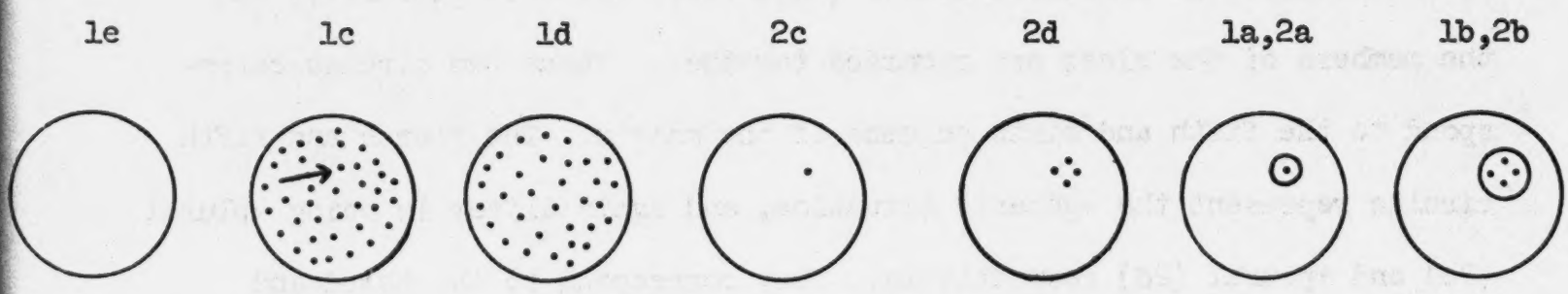


Figure 2

indicated with small circles around the dots. The identity of the elephants here is known to both speaker and hearer. These circles correspond to the first two columns of the matrix.

In considering how the semantic structure of English produces these seven different inflections of English nouns, we may be helped if we begin with a simplification which is possible when we limit ourselves initially to -count (or mass) nouns, postponing for a moment our consideration of +count nouns like elephant. The distinction between +count and -count is a selectional one, not an inflectional distinction like those we have examined up to now. Among nouns which are inherently +common (rather than -common or proper), certain ones are inherently +count while others are -count. Any noun is regularly associated with one or another combination of these selectional units. (That the ±common and ±count distinctions are regarded as semantic should require no special justification; clearly they 'have meaning'.) As an example of a -count noun we can take water. Its limited inflectional possibilities can be illustrated with the following sentences:

(4) a. The water leaked onto the floor.

b. (Sm) water leaked onto the floor.

c. Water flows downhill.

(4a) has a +definite, already pinpointed subject as contrasted with the -definite subjects of (4b,c). On the other hand (4c) has a subject which is +generic, involving all water, while the subjects of (4a,b) are -generic, involving only some water. The matrix of Figure 3 is sufficient to account for these three inflections. The meaning of +count entails a potential breakdown of the totality specified by the noun into separate, individualized entities. A -count noun has no such potentiality, and as a consequence the

	the water (4a)	(sm) water (4b)	water (4c)
definite	+	-	-
generic	-	-	+

Figure 3

distinction between +aggregate and -aggregate is irrelevant to it, as is also the distinction between +plural and -plural. The absence of these distinctions explains the fact that -count nouns are subject only to the three inflections just mentioned.

The speaker has a choice over whether he will make an N +definite or -definite. This choice can be expressed in a rule stateable as follows:

(S1) N -⇢ +definite/+common

The broken arrow of this rule (in contrast to the solid arrow of (S2) below) indicates that N <u>may</u> include the inflectional unit +definite (provided it already includes the selectional unit +common). A convention associated with such rules implies that if +definite is not chosen, N in the environment of +common will be -definite. From the discussion in the preceding paragraph it is evident that when N is +definite, it must be also -generic. (We shall see below, however, that this is not always true.) But if N is -definite, apparently there is a choice over whether it will be +generic or -generic. This choice is only apparent, however, for in fact the presence of ±generic in a -definite N is determined by the V with which the N is associated. So far we have been considering

only an N which functions as the subject of a V, but the same observation can be extended to an N which is the object of a V, as will be illustrated immediately, and to other N's as well, as we shall see later. In sentence (4b) it is the -generic V, leaked onto the floor, which causes its subject to be -generic. In (4c) the +generic V, flows downhill, causes its subject to be +generic. Only in the case of a +definite N is the subject of a V able to escape agreement with the ±generic nature of the V; in that case the N is always (with the exception to be considered below) -generic. The introduction of the ±generic distinction into N can be stated as follows:

(S2) -definite → +generic/V·+generic

That is, -definite entails +generic if the V with which the -definite N is associated is +generic. By implication N is -generic under other circumstances; specifically, if V is -generic or if N itself is +definite. (S1) and (S2) thus generate the three inflections of -count nouns which are illustrated in sentences (4) and set forth in Figure 3.

This assertion that a -definite N agrees with its V as to the ±generic distinction calls for further discussion. Under many circumstances, I submit, a speaker has a choice over whether he will inflect a V as +generic or -generic; whenever there is such a choice it is localized in the V and not in any associated N. We might consider first a so-called 'progressive' form like is drinking:

(5) a. Ann is drinking (sm) coffee (right now).

b. Ann is drinking coffee (these days).

The adverbial elements in parentheses are inserted just to clarify the meanings intended; the sentences are meant to be read without them. If the optional sm is omitted, the two sentences of (5) are phonetically

identical, but they illustrate two distinct semantic structures, the difference between which is simply a matter of +generic (as I am identifying it) being chosen for the V in (5b), while the V in (5a) is -generic. From that choice it follows automatically that the object coffee of (5a) is -generic, like the subject of (4b), while the object of (5b) is +generic like the subject of (4c). The +generic choice is not restricted to a V which is 'progressive', however. The sentences in (6) are related to each other in the same way as those in (5):

(6) a. Ann drank (sm) coffee.

b. Ann drank coffee.

as are the sentences in (7):

(7) a. Ann drinks (sm) coffee.

b. Ann drinks coffee.

(7a) might be used in an ongoing narration, as a stage direction or the caption of a photograph, etc.

The choice of +generic within V is not always free, however. The adverbial elements added to clarify the meanings in (5) illustrate the fact that such an element may impose +generic or -generic on its V. If the inherently -generic element right now is included in (5a), the V is drinking is forced to agree with it, and the object coffee is in turn forced to agree with the V. If the +generic adverbial element these days is included in (5b), the V is forced to agree with it, and the object is in turn necessarily +generic also. In such sentences the choice of +generic is determined for the whole sentence by the choice of the adverbial. Certain verbs, moreover, are inherently +generic. The verb hate is an example:

(8) a. Ann hates coffee.

b. Ann hated coffee.

Both sentences can have only a +generic V, and thus only a +generic object. A phonetic output like *Ann hated sm coffee cannot occur; there is no semantic structure which would lead to it. So-called predicate adjectives and nouns are also +generic, so that their subjects must be +generic as well. The sentences of (9), in which both the V and its subject are +generic, illustrate this point:

(9) a. Water is colorless.

b. Water became scarce.

c. Water is a compound.

This discussion has assumed that +generic and -generic are semantic units within V as well as within N. The assumption has the advantage of allowing us to view the ±generic inflection of a -definite N as nothing more than an extension into the N of something that is already present in the V. On the other hand, it is not obvious that +generic when applied to a V is the same semantic unit as +generic when applied to an N. In the case of an N we saw that the meaning of +generic involves a focus on the entire class of things indicated by the noun. How can this same meaning be relevant to a verb? What seems to be involved within V, in fact, is a meaning which we could roughly label as habitual. For example, is big or hates are inherently +habitual, while stepped on my car is -habitual and is drinking may be either. We could certainly easily adjust our description to say that a -definite N is αgeneric in the presence of an αhabitual V. I have tentatively assumed here, however, that habituality is simply the guise assumed by genericness within V, and that there is no need to posit a second semantic unit.

One might also raise the question why the semantic choice over ±generic

is assumed to reside in the V. Could we not as well assume that one chooses to inflect an N as +generic, and that the V must agree with the N? I think not. For one thing, V determines the genericness of both its subject and its object, as well as of other N's which may be in the sentence. The situation is simple if we regard genericness as radiating from the V to its satellite N's, but chaotic if we attempt to find its source in any one of the N's. It is interesting also that a V forces its genericness on an N even if the N is forced from another direction to assume a different generic value. The resulting contradiction produces a schizophrenic effect in the N. For example, we shall see below that the quantifier *any* is always associated with a +generic N. The expanded V, *stepped on my car*, however, is -generic. An attempt to force both influences on the same N produces the unusual effect observable in **Any elephant stepped on my car*. If the V simply agreed with, say, its subject N, it ought to be able to do so here, but obviously it does not. The V exerts an influence of its own.

Beyond this kind of evidence, which is specific to the case at hand, I believe there are other facts which support a universal principle to the effect that V imposes semantic units on N quite generally, and not vice versa. To mention just one other kind of example, if we are compelled to understand sentences like those in (10):

(10) a. The chair admired the table.

b. The table frightened the chair.

if we have to give them a semantic structure, we do so by assigning the selectional unit +animate to *chair*. This is an unusual assignment, but one that the V in these sentences forces us to make. *Admire* requires a +animate subject, *frighten* a +animate object. We understand the sentences

by making this adjustment. The V, then, imposes its semantic will on the N; the N does not make us understand the V in some semantically unusual way. And so it is with the ±generic distinction also.

Rules (S1) and (S2) generate within the semantic structure of English the definiteness and genericness of N's which are -count. For such N's no further inflection of the kind we have been discussing is possible. But let us turn now to N's which are +count. Here all seven of the inflections illustrated in sentences (1) and (2) and set forth in Figure 1 are possible. We can generate them by adding the following two rules to (S1) and (S2):

(S3) +generic --→ +aggregate/+count

(S4) -aggregate --→ +plural

Rule (S3) specifies that if N is +count and has also been established as +generic through agreement with its V, in accordance with (S2), it may be inflected as +aggregate. By implication any N which is +count but is not +aggregate must be -aggregate. Thus, for +count N's -aggregate extends not only over those which are +generic but also over those which are -generic. Rule (S4) then says that any -aggregate N may be +plural. It is implied that any +count N which is not +plural, including a +aggregate N, is -plural. These four rules thus fill out the matrix of Figure 1. Their format is such that they may be regarded as applying to an initial matrix in which all the cells are minus. The rules then convert some of the minuses to plus. Rules (S1,3,4) are optional and indicate a semantic choice within the N. Rule (S2) is obligatory and only reflects a semantic choice already made in the V or elsewhere.

Bounded and Proper Nouns

An additional possibility for the inflection of N on these parameters

can be brought out through a comparison of the following two sentences:

(11) a. The elephants like peanuts.

b. The Indians like corn.

Sentence (11b) is ambiguous in a way that (11a) is not. We noted earlier that an N which is +definite is automatically -generic, evidently as a reflection of the fact that the particular object or objects known to both speaker and hearer (and thus +definite) must be less than the entire class of objects indicated by the noun. The only way that we have yet provided for the introduction of +generic into N is through agreement with a +generic V, but this agreement takes place only in an N which is -definite, as (S2) stipulates. Sentence (11a) conforms to this expected conjunction of +definite with -generic. So does one of the semantic structures underlying the phonetic output cited in (11b), the semantic structure in which only some particular Indians are involved (cf. The Indians who live in New York like corn). But there is a second semantic structure which can underlie this same phonetic output, one in which the class of all Indians is at issue. The subject of this other sentence can be interpreted in the same way we would normally interpret the subject of The Indians migrated into North America from Siberia (although that sentence too is ambiguous). Sentence (11a) can only have a -generic subject, but evidently in one meaning of (11b) we have an instance where a +definite N is +generic. Is there something about the noun Indian which causes it to behave differently from the noun elephant in this respect? It would seem that there is. Accompanying the noun Indian is a selectional unit whose meaning must be that the limits of the class of Indians is implicitly known. A speaker of English (or of any language with these semantic units related in this way) tacitly understands that the class of Indians has a known boundary, while the class

of elephants does not. I shall say, therefore, that a selectional unit +bounded is associated with Indian, while -bounded is associated with elephant.

Let us now consider how the inflectional semantic structure of the subject of sentence (11b) can be generated. As we run through the rules, if the unit +definite is not introduced by (S1), (S2) causes the subject N to assimilate the unit +generic which is already present (we may assume) in the V which contains the verb like. Subsequently, if +aggregate is not introduced by (S3), the unit +plural can be chosen in accordance with (S4). At this point, then, we have a subject which is +generic (because of the V) and +plural (by choice). This is a possible inflection--one that would be phonetically symbolized as Indians (like corn). But the fact that Indian is +bounded allows another possibility. The presence of +generic means that the entire class of Indians is being talked about, and the presence of +plural means that all the members of the class are being considered together. But the presence of the selectional unit +bounded means that the limits of this class are known to both speaker and hearer. Because of this knowledge it is possible for the +generic +plural inflection to be +definite as well. This possibility is lacking for a -bounded noun like elephant, simply because the presence of +generic means in that case that the limits of what is being talked about are unknown. The option which is available for +bounded nouns only can be introduced by (S5):

$$(S5) \quad \begin{bmatrix} +\text{generic} \\ +\text{plural} \end{bmatrix} \longrightarrow +\text{definite}/+\text{bounded}$$

That is, an N which is already +generic and +plural may also be +definite, provided it is selectionally +bounded.

In a bookstore recently I saw a book whose title was simply A Field Guide to the Birds. The title struck me immediately as deviant with relation to English semantic structure. Probably it had evolved by truncation from a normal title like A Field Guide to the Birds of Eastern North America, but as it stood there was something wrong with it. It suggested two possible semantic structures, but each was peculiar in its own way. One possibility would have had bird inflected as +definite and -generic, but that would have implied that I knew what birds were at issue, and clearly I did not. I wanted to ask, 'What birds?' (In the longer title suggested as the prototype of this one the identity of the birds is explained.) The other possibility would have had bird inflected as +definite and +generic, but--and this is the important point here--that inflection would have required bird to be +bounded. For me, and I believe in English normally, it is not.

Many, but not all nouns which are +bounded are spelled with a capital letter, as is Indian. Many of them refer to political, ethnic, or other social groups. (12a) is ambiguous in the same way as (11b):

(12) a. The hippies have long hair.

b. The computers have been overrated.

c. The typewriters have been overrated.

There are other kinds of nouns, however, which are +bounded, as (12b) demonstrates. We may note that, unlike computer, typewriter is -bounded; (12c) has only the -generic interpretation.

It has been suggested (Postal 1966:200) that +definite N's are all +generic, instead of being for the most part -generic as I suggested earlier. For one thing, however, a necessary connection between +definite and +generic is semantically implausible, since those members of a class

which are understood to be specifically identified to both speaker and hearer (and are thus +definite) are not likely to constitute the entire class in most cases. The last two circles in Figure 2 make this plain, and it seems quite correct to lump them together with the preceding two circles in the -generic category. For another thing, the observations just discussed show clearly that the Indians, which is always +definite, can be either +generic or -generic. Furthermore, it is evident that the +generic meaning can be present only with a +bounded noun like Indian, and that the usual +definite inflection (the elephants) allows only the -generic alternative. (Postal's argument was based on the supposition that +generic is incompatible with restrictive relative clauses, as he tried to demonstrate by citing the ungrammaticality of *Strong as gorillas who live in Africa are ... Since this combination of +generic gorillas with the restrictive relative who live in Africa is, in fact, perfectly acceptable, the argument thereby loses its point.)

There are many nouns which are, as it were, bounded in an extreme way. These are the nouns whose meanings are so limited that they consist of but a single member, like sun or Roger. Only one inflection is possible for such nouns. Since they can never involve anything less than the entire class, they are always +generic. Since the member of the class cannot help but be known to both speaker and hearer, there being no other member, they are always +definite. There is no possibility for combining many into one since there is no many but only one to begin with; they must, therefore, be always -aggregate. Finally, +plural is obviously ruled out. Many of the nouns of this kind are traditionally referred to as proper; I shall label all of them here -common. The meaning of -common, then, is unique class membership, and the meaning of +common is the opposite. The

outstanding characteristic of -common nouns is that they lack the multiple possibilities for inflection that have been described for +common nouns. A -common noun can only be inflected in the manner stated in (S6):

(S6) $$N \rightarrow \begin{bmatrix} +\text{definite} \\ +\text{generic} \\ -\text{aggregate} \\ -\text{plural} \end{bmatrix} \quad /\text{-common}$$

This rule is the alternative to (S1) which must apply if N is -common rather than +common. While the order of application of (S1) through (S5) is that indicated by the numbering, (S6) is applied coordinately with (S1). It may be noted that special provisions must be made to account for the surface structure of -common nouns, some of which are symbolized with the (the sun), but most of which have no article (Roger). We shall come shortly to the question of the postsemantic form of all N's.

Special Inflections

The system of inflection described above applies quite generally throughout English, but there are some restrictions on it and additions to it which apply under special circumstances. For example, while the statements above are generally true for N's which are subjects, the objects of many verbs are limited in special ways. Verbs whose meanings involve some kind of change in the condition of the object noun, as one example, do not tolerate an object which is +aggregate. The reason, perhaps, is that it is inconceivable that the entire undifferentiated class should be modified in the way specified by the verb:

(13) a. Roger smokes a cigar.

b. Roger smokes cigars.

c. *Roger smokes the cigar.

The V in these sentences is to be understood as +generic. If it were -generic, sentence (13c) would be possible; its object would be +definite, and the sentence could be imagined as a stage direction, for example. It may be wondered whether the objects in (13a,b) are really +generic, in agreement with the V. It does not seem correct to say that Roger smokes the entire class of cigars. Yet the meaning seems to be that his action is directed toward all members of the class indiscriminately. Certainly we are not saying that he smokes some proper subset of the class. Further evidence that (13b) is +generic lies in the fact that we cannot add sm to it, as we could if it were -generic: *Roger smokes sm cigars would have to contain a -generic V in order to be a possible sentence. Many other verbs are like smoke in their lack of tolerance for a +aggregate object. We might note the parallel behavior of dig in these sentences:

(14) a. A gopher digs a tunnel.

b. A gopher digs tunnels.

c. *A gopher digs the tunnel.

The correct formalization of this restriction is probably through the presence of a selectional unit within the V which specifies incompatibility with a +aggregate object. But let us go on to look at another restriction of a similar kind.

Another set of verbs rules out an object that is +generic, -aggregate, and -plural. Another way to put it would be to say that these verbs, when +generic, require an object that is either +plural or +aggregate. The reason seems to be that their meanings cannot act upon one member of a class at a time, but must always affect all members of the class at once. The verb study is an example, as can be seen in the following sentences

where the V is again to be interpreted as +generic:

(15) a. Roger is studying elephants.

b. Roger is studying the elephant.

c. *Roger is studying an elephant.

Of course, (15c) is perfectly possible with a -generic V. There are still other verbs which seem to have the interesting peculiarity of imposing -generic on their subject but +generic on their object. One such verb is discover, and it shares with study the requirement that its object be either +plural or +aggregate:

(16) a. A scientist discovered neutrons.

b. A scientist discovered the neutron.

c. *A scientist discovered a neutron.

The subject of (16a,b) is -generic while the objects are +generic. (16c) is a possible sentence only if it is understood to contain a different verb discover, one that means something like 'find, come upon' rather than 'bring to public attention' as in (16a,b).

More could be said about these peculiarities of certain verbs, and undoubtedly there are other verbs with other peculiarities. Let us turn, however, to a situation of a somewhat different type: the existence of some verbs which (optionally) condition a wholly new inflectional unit in the N which is their object, a unit which we have not yet encountered. The reality of such a unit becomes clear if we consider the fact that each of the following sentences is ambiguous:

(17) a. I'm looking for an elephant.

b. I'm looking for (sm) elephants.

The verb look for when it is 'progressive' is normally -generic, and the

objects of these two sentences are evidently both -generic and -definite. They differ only in that (17a) has a -plural object, while (17b) has a +plural object. Why is it, then, that we can recognize two different meanings for the object in each sentence? In (17a) I may be looking for some particular elephant (whose identity is not known to the hearer), as we would normally expect with the -definite -generic inflection, but I may on the other hand be looking for any elephant at all. In the first case I might follow this sentence with a statement beginning When I find it ... In the second case I would have to say When I find one ...Parallel observations can be made for (17b), with the necessary adjustments for plurality. Either I am looking for some particular elephants or I am looking for any elephants whatsoever. In the first case I might add When I find them ... In the second case I would have to say When I find some ... What seems to be the case is that look for is associated with a selectional unit which we might label +random. This unit within the V is then optionally extended to an object which is -definite and -generic, although to no other kind of object. The following rule can be used to state this optional agreement:

(87) $\begin{bmatrix} \text{-definite} \\ \text{-generic} \end{bmatrix} \dashrightarrow$ +random/(object)V·+random

That is, an N which is -definite and -generic may be +random if it is the object of a V which is +random. By implication any other N is -random. As an example of another verb which is associated with the selectional unit +random we might notice the behavior of the verb want. The same kind of ambiguity that we saw in (17) can be observed in the following:

(18) a. Roger wants a book.

b. Roger wants (sm) books.

After (18a) with a -random object we might add Its title has escaped me; after (18a) with a +random object, Any book will do. Similar statements could follow the two sentences underlying (18b), with the proper adjustments for plurality. Baker 1966, in effect, equates what I have called +random with +generic, but I am convinced that the two are distinct. The V's in (17) and (18) are -generic and condition -generic objects. It is significant also that sm can be added to the objects of (17b) and (18b) with either of the meanings of each. It could not be added if the objects were +generic.

We have seen that particular verbs can influence the inflection of the N which is their object in ways that go beyond the assignment of inflectional units provided for in rules (S1) through (S6). But not every N, of course, is the subject or the object of a V. The most common other occurrence of an N is within a prepositional phrase, and we should certainly give at least passing attention to how such an N is inflected. Prepositional phrases in the surface structure of sentences have many different semantic sources. Since we are concerned here with semantic structure, we should consider only those phrases which belong in that area. I believe that semantically a preposition is a particular kind of derivational unit, one which has the function of converting an N into an A (a nominal element into an attributive one). The inflection of an N within a semantic prepositional phrase appears to offer all the possibilities available to an N which is a subject or an object. Like those other N's, its inflection as +generic or -generic is determined by the V with which it is associated, as is evident in the following sentences:

(19) a. Eskimos live in an igloo.

b. Eskimos live in igloos.

c. Eskimos live in the igloo.

d. She taught in an igloo.

e. She taught in (sm) igloos.

The V in (19a,b,c) would normally be understood as +generic, and the N containing igloo is thus automatically +generic also. In (19d,e) the V is (let us assume) -generic, in which case the N containing igloo in those sentences must be -generic as well. As another illustration we might consider the prepositional phrases introduced by during in the following sentences:

(20) a. People often cough during a concert.

b. People often cough during concerts.

c. The idea came to me during a concert.

d. The idea came to me during (sm) concerts.

In this case, as is very often true of an N which is an object also, as we have seen, the inflection of concert as +aggregate seems to be ruled out. There is no sentence *People often cough during the concert (with a -definite +aggregate concert) to correspond to (19c). In fact, with relation to (19c) it would be almost equally odd to say *Eskimos live in the house, with house +aggregate, unless house, like igloo, is meant as a particular style of dwelling structure. Evidently there is another selectional unit within N which plays a role here. I mention these observations only to point out that further work in this area is called for.

A summary of what has been said so far may be useful at this point. The semantic inflection of an N has been seen as capable of generation by the following set of rules:

(S1) N $\rightarrow$ +definite/+common

(S2) -definite → +generic/V--generic

(S3) +generic --→ +aggregate/+count

(S4) -aggregate --→ +plural

(S5) $\begin{bmatrix}+\text{generic}\\+\text{plural}\end{bmatrix}$ --→ +definite/+bounded

(S6) N → $\begin{bmatrix}+\text{definite}\\+\text{generic}\\-\text{aggregate}\\-\text{plural}\\-\text{random}\end{bmatrix}$ /-common

(S7) $\begin{bmatrix}-\text{definite}\\-\text{generic}\end{bmatrix}$ --→ +random/(object)V·+random

Rules (S1) through (S5) are ordered as they are numbered, and rule (S7) must be applied after (S2). Rule (S6) is separate from the others, and establishes the inflection of a -common N to be as indicated. With the noun sun the surface structure is the sun. With the noun Roger, it is simply Roger. Only rules (S1) and (S2) apply to a +common N which is -count. They establish the following possible inflections, which are limited by the +generic nature of the V:

	1	2	3
definite	+	-	-
generic	-	-	+

Figure 4

With the noun water the surface structure of column 1 is the water, of column 2 (sm) water, and of column 3 water. All the rules except (S6) apply to a +common N which is +count. The following inflections are possible, limited by the +generic and +random nature of the V, as well as the +bounded nature of the N:

	1	2	3	4	5	6	7	8	9	10
definite	+	+	-	-	-	-	-	-	-	+
generic	-	-	-	-	-	-	+	+	+	+
aggregate	-	-	-	-	-	-	-	-	+	-
plural	-	+	-	+	-	+	-	+	-	+
random	-	-	-	-	+	+	-	-	-	-

Figure 5

With the noun elephant, the surface structure of column 1 is the elephant, of column 2 the elephants, of column 3 an elephant, of column 4 (sm) elephants, of column 5 an elephant, of column 6 (sm) elephants, of column 7 an elephant, of column 8 elephants, and of column 9 the elephant. Column 10 is a possible inflection of a +bounded N like Indian only. Its surface structure is the Indians. Besides the restriction of column 10 to +bounded N's, columns 5 and 6 are possible only for the object of a +random V. In columns 3 through 10 the choice of +generic or -generic is determined by the V.

It is sometimes said that considerations of logical simplicity have a bearing on the kind of semantic structure that we posit. In the matrix given in Figure 5, for example, such considerations would lead us to delete the row labeled aggregate, for the only column to contain +aggregate, column 9, could just as well be regarded as the -plural counterpart to column 10. If we just eliminated the aggregate row and changed the value of definite in column 9 from minus to plus, we would have a simpler as well as more symmetrical matrix, and we would still have each column uniquely specified. In addition, the surface occurrence of the would be consistently

associated with the semantic presence of +definite, whereas in Figure 5 it is associated with +aggregate (and -definite) in column 9. This simplifying and aesthetically satisfying expedient, however, would have several semantic consequences. For one thing, it would mean that in both semantic structures underlying such ambiguous sentences as The elephant is big the subject is +definite, whereas other +generic N's like the subjects of An elephant is big or Elephants are big are -definite. I submit that this consequence is empirically wrong; that an elephant, elephants, and the elephant (all +generic) do not differ as to definiteness. I base this statement quite unashamedly on introspection, which in fact constitutes the empirical basis for this entire paper. The data for semantics lies inside the mind, and that is the place to look for it. Furthermore, however, we noted that column 10 is possible only for the object of an N which contains the semantic unit +bounded. No such restriction exists for column 9, which is of much more general occurrence. The symmetry which might be achieved by the suggested modification in column 9 is therefore illusory, since it leads to the assumption of a parallelism between columns 9 and 10 which is quite lacking in their behavior. I believe we must conclude that +generic N's are normally -definite, and that this correlation is broken only in the very special case of a noun like Indian which is +bounded. I have stressed this point because it seems to me important that semantic structure must be posited on the basis of empirical observations, and that a search for logical simplicity which overlooks such observations is seriously misguided.

Postsemantic Structures

The semantic inflections which are generated in the manner described

above must pass through a series of postsemantic metamorphoses before they assume a form which is directly convertible into an underlying phonological structure. The modifications which apply to the particular semantic structures which have been described are not especially complex, and their main characteristics can be outlined briefly.

In the first place, in accordance with what seems to be a general principle, all of the selectional units which have been mentioned (+common, +count, +bounded, and the like, as well as their negations) are of semantic relevance only, and need not be carried further along the path to surface structure. A reasonable first step, therefore, is the deletion of these selectional units. A significant proportion of the inflectional units can also be deleted, although some of them must be retained for eventual phonological symbolization. It turns out that when we try to specify which inflectional units are to be retained, we find that this retention is contextually determined in such a way that it is necessary to have reference to various of the inflectional and selectional units which are to be deleted. In other words, we cannot delete selectional and inflectional units until we have already determined which of the inflectional units are not to be deleted. A possible procedure is to examine the semantic structure in its original form, to mark all those inflectional units which are not to be deleted, and then to delete the remaining inflectional units together with all of the selectional units. The total deletion process thus has two stages:

(T1) Mark for retention the following:

a. +plural

b. +aggregate

c. +definite/ $\left\{\begin{matrix} \text{+common} \\ \text{sun} \\ \vdots \end{matrix}\right\}$

d. $\begin{bmatrix}\text{-definite}\\\text{-generic}\end{bmatrix} / \begin{Bmatrix}\text{-count}\\\text{+plural}\end{Bmatrix}$

e. $\begin{bmatrix}\text{-definite}\\\text{-plural}\end{bmatrix}$ except /+aggregate

(T2) Delete inflectional units not marked for retention, and all selectional units.

I have stated the environment of (T1e) in this negative fashion, rather than as '/-aggregate', to accommodate more readily the inflection of predicate nouns as described subsequently. Let us consider why each of the inflectional units listed in (T1) has to be retained. The unit +plural is, of course, eventually symbolized by a suffix attached to the noun, or by other, less regular means. In elephants it is symbolized by the regular sibilant suffix, in men in a different way, and in sheep it is deleted at the last minute. The unit +aggregate is retained, only to be converted into +definite by another rule:

(T3) +aggregate → +definite

That is, +aggregate is eventually symbolized as if it were +definite. The elephant (+aggregate) and the elephant (+definite) are homophonous.

The retention of the remaining inflectional units listed in (T1) makes reference to the environment. The unit +definite is retained so long as N is +common, but it is also retained with a few listable -common nouns such as sun and North Pole. With the majority of -common nouns it is deleted. We say the sun and the North Pole, but Tom and Jane and Washington. The combination -definite -generic is retained under some circumstances, eventually to be symbolized as (sm), that is, an unstressed some which is subject to optional deletion. There are two disjunctive conditions for this retention. The combination -definite -generic is retained if N is

selectionally -count ((sm) water, (sm) wood) or if it is +plural ((sm) elephants). Finally, the combination -definite -plural is retained except in the environment of +aggregate, and is eventually symbolized as a(n). Homophony again results: an elephant may be either +generic or -generic, but it is always -definite and -plural.

The rules which eventually replace postsemantic units with arrangements of phonological units belong to a category which I have called symbolization rules. Those which are relevant here can be stated quite simply (the designation to the right of the arrow is intended to represent an underlying phonological form):

$$\text{+plural} \rightarrow \text{s etc.}$$

$$\text{+definite} \rightarrow \text{the}$$

$$\begin{bmatrix}\text{-definite}\\ \text{-generic}\end{bmatrix} \rightarrow \text{(sm)}$$

$$\begin{bmatrix}\text{-definite}\\ \text{-plural}\end{bmatrix} \rightarrow \text{a(n)}$$

Lexical units (elephant, water, Roger) are all retained through the postsemantic modifications and eventually symbolized in the appropriate ways. Figure 6 illustrates a few of the postsemantic modifications effected by (T1), (T2), and (T3). The original semantic structure generated by (S1) through (S7) is indicated on the left, followed by the resulting postsemantic structure and the eventual symbolization (still indicated only roughly by means of English orthography).

It is evident that before the final surface structure is reached, a linearization process must also apply, for none of these units are conceived as being linearly arranged within the original semantic structure. In these examples the linearization is quite simple, involving a placement of

+plural after the noun and of all other retained inflectional units before it, with -definite -generic and -definite -plural both kept as simultaneous clusters. A more complete picture would have to take account of the fact that the inflectional units placed before the noun move to the left of still other items, so that we say <u>the big elephant</u> rather than *<u>big the elephant</u>. We shall see shortly that this is a natural reflection of the semantic situation, and we are thus led to turn our attention to the next topic.

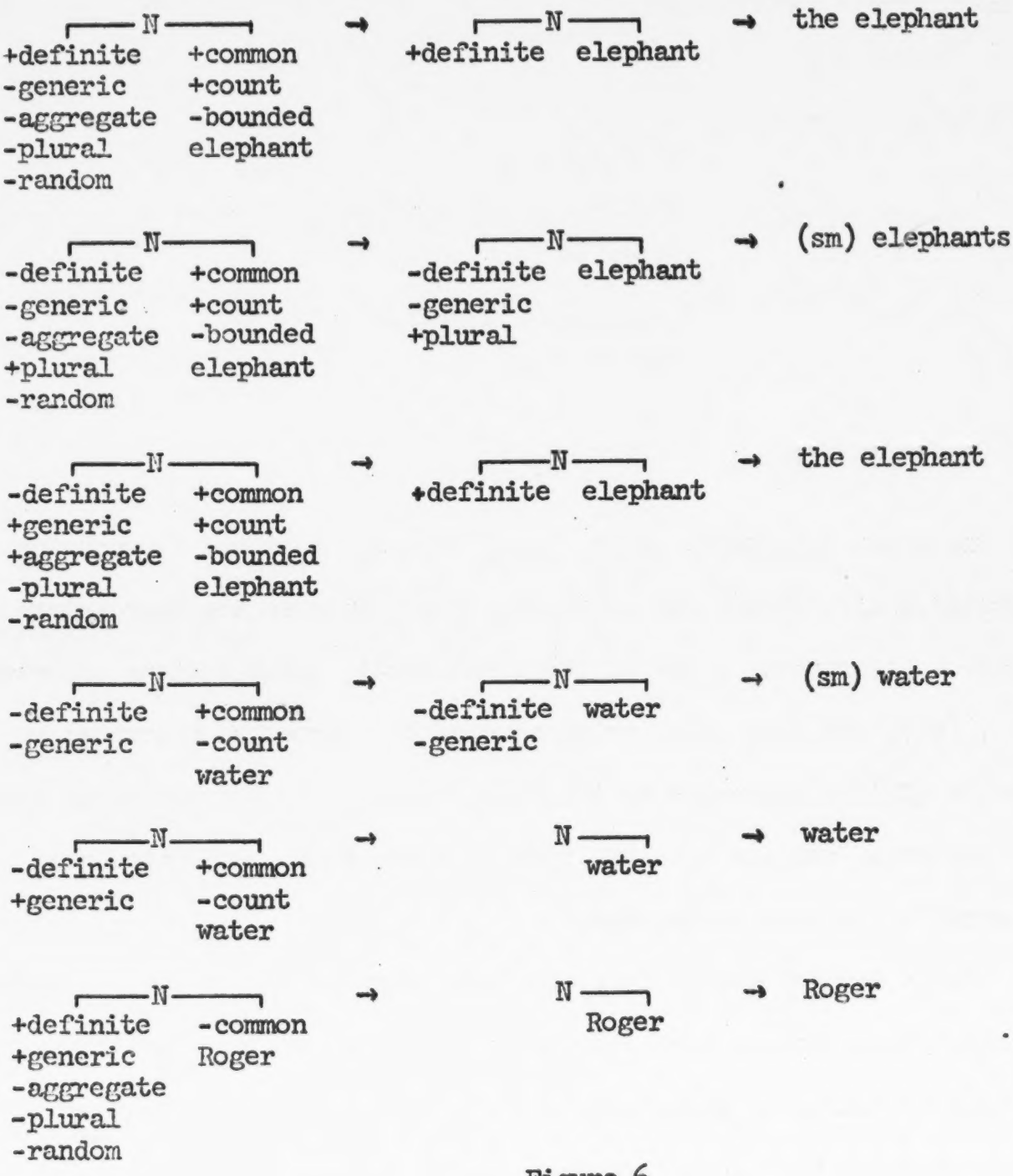


Figure 6

Adjectives

Let us look once more at the sentences of (1):

(1) a. The elephant is big.

b. The elephants are big.

c. An elephant is big.

d. Elephants are big.

e. The elephant is big.

When these sentences were first introduced, attention was called to three different ways in which (1a,b) differ from (1c,d,e). Two of these ways have been accounted for. We have seen that the subjects in (1a,b) are +definite, as opposed to the -definite subjects of (1c,d,e), and that the +generic V common to all these sentences imposes the unit +generic on the -definite subjects of (1c,d,e) while it does not do so on the +definite subjects of (1a,b), the latter being left -generic. But we noticed also a third way in which the first two sentences differ from the last three, and this is a way which we have not yet discussed. In (1a,b) <u>big</u> is calibrated with respect to the norm for elephants; in (1c,d,e) it is calibrated with respect to the norm for animals. How can we explain this observation?

A further observation is possible. The following sentences are meant to correspond to the sentences of (1) and (2) as to the <u>+</u>generic nature of their subjects:

(21) a. The big elephant is dangerous.

b. The big elephants are dangerous.

c. A big elephant is dangerous.

d. Big elephants are dangerous.

e. The big elephant is dangerous.

f. The big elephant stepped on my car.

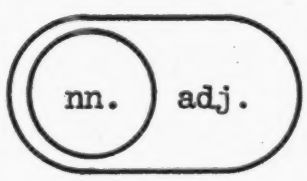
g. The big elephants stepped on my car.

h. A big elephant stepped on my car.

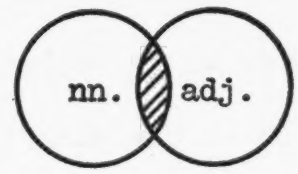
i. (Sm) big elephants stepped on my car.

In all of these sentences big is calibrated against the norm for elephants. No matter what the inflection of the subject is, the calibration of its adjective is the same. Let us say that big in the sentences of (1) is predicative, and that in the sentences of (21) it is attributive. We need only to compare the meaning of Elephants are big with the meaning of big elephants to see that predication and attribution are semantically different. From a generative semantic point of view this fact rules out the derivation of either one from the other, a procedure which has been popular within the generative syntactic framework.

The difference can be pictured as in Figure 7. In predication the



Predication



Attribution

Figure 7

class of objects denoted by the subject is understood to be properly included within the class of objects which have the quality specified by the predicate adjective. Thus, in Elephants are big the class of all elephants (since the subject is +generic) is understood to be properly included within the class of things that are big. In attribution, on the other hand, there

is always just a partial intersection of the class of objects denoted by the noun with the class of objects which have the quality specified by the attributive adjective. In big elephants, for example, there is a partial intersection of the class of elephants with the class of things that are big, as indicated by the shaded area in Figure 7. Whatever inflection then takes place applies to the semantic unit formed by this intersection, not to the entire noun. That is, if big elephants is inflected as +generic, it is not the entire class of elephants which is involved (as is the case when just elephants is +generic). It is the entire class formed by the intersection of elephant with big, the shaded area of Figure 7. In (sm) big elephants, which is -generic, we understand that a proper subset of this shaded area is involved, not a proper subset of all elephants. The fact that inflection applies to the intersection of the adjective with the noun and not to just the noun is neatly reflected in English surface structure by the fact that surface items like the, (sm), and a(n), which derive from inflectional units, are, as we noted earlier, linearized to precede the entire adjective-noun combination and not just the noun. Thus, we say the big elephant rather than *big the elephant because, in a sense, the applies to big elephant and not just to elephant alone. It would be wrong to think that surface structure is totally unrelated to semantic structure, and this is a case in point.

With the above background, we can explain the calibration of big in (1) and (21) if we assume that the following general principles hold: (1) An adjective is automatically calibrated against the norm for the noun, so long as there are some objects specified by the noun which do not have the quality specified by the adjective. (2) If all objects specified by the noun do have the quality specified by the adjective, the adjective is

calibrated against the selectional unit which is next above the noun in its taxonomic hierarchy. (Katz 1967:186-8 was getting at something of this sort.) To be specific, the subjects in (1c,d,e) are +generic and thus involve the entire class of elephants, and their relation to the predicate big takes place in the manner illustrated on the left of Figure 7. The result is that all elephants are included within the class of things that are big. There are no elephants which are not big. It is under this circumstance that bigness cannot be calibrated against the norm for elephants. If it were, we would be saying that elephants are big with respect to elephants, and apparently there is a general semantic principle which rules out such an absurdity. What happens in such a case is that the calibration of big is automatically upped one notch to the semantic unit taxonomically above elephant, which is evidently animal (I do not mean the noun animal, but a semantic unit to which we can give that label). I am assuming that there are a variety of selectional units associated with elephant in addition to those listed in Figure 6, some of which can be termed taxonomic. Closest to elephant among them is this unit animal. In a similar way, in (22a) we understand that bigness is calibrated against automobile, and in (22b) that it is calibrated against mouse-like animal:

(22) a. A Cadillac is big.

b. A rat is big.

In sentences (1a,b) the subjects are -generic, and thus do not include the entire class of elephants. When they are combined with the predicate big as indicated on the left of Figure 7, therefore, there are members of the class of elephants which remain outside the class of things that are big. Here, then, it is possible for big to be calibrated against the norm

for elephants, for it is understood that there are some elephants which are not big. Something similar can be said about the subjects in all the sentences of (21). In these sentences elephant is related to big in the manner suggested on the right of Figure 7. Because attribution always involves an intersection which is only partial, there are always members of the class specified by the noun which remain outside the class of things which have the quality specified by the adjective. There are always, in this case, elephants which are not big. Thus, here again it is possible for bigness to be calibrated with respect to elephants. We can make the general statement that attributive adjectives are always calibrated against the norm for the nouns to which they are attributive, that predicative adjectives are calibrated against the norm for the nouns to which they are predicative when the latter are -generic, and that predicative adjectives are calibrated against the next higher unit in the taxonomic hierarchy when their nouns are +generic. The difference between predication and attribution illustrated in Figure 7, together with the principle that a noun cannot have a quality calibrated against the noun itself when all the objects specified by the noun have that quality, explain why this situation should exist.

Highlighting

Some readers may have noticed that some of the sentences in (21) are ambiguous in a way that has not been accounted for. Sentence (21h) can be cited as an example: A big elephant stepped on my car. While one meaning of this sentence involves the normal kind of attribution between big and elephant which was just discussed, the other meaning does not. This second meaning seems to assume that we already know that elephants are big, but

have chosen to highlight this inherent characteristic. The same observation can be made concerning the following N's:

(23) a. a big rat

b. a little flea

c. a conservative Republican

d. a funny clown

Each is ambiguous, with one meaning involving the normal attributive relation between the adjective and the noun, the other meaning involving a highlighting of some inherent property of the noun. Thus, elephants and rats are inherently big, fleas little, Republicans conservative, and clowns funny. The same highlighting effect is not present in the following, and they are not ambiguous:

(24) a. a big mouse

b. a little elephant

c. a conservative Democrat

d. a funny person

A mouse is not inherently big, nor an elephant little, nor a Democrat conservative, nor a person funny. One additional observation we can make is that highlighting is never found with stress on the adjective. If the adjectives in (23) are stressed, the phrases cease to be ambiguous.

Although the surface structures are identical, the two semantic structures represented by each of the phrases in (23) are very different. One of them is a normal attribution construction. The other may be regarded as containing no separate A at all, but only an N. Within this N, however, are contained as usual a number of selectional units, among which belongs a type which I shall call here selectional attributes. Such units include

big for the noun elephant and rat, little for the noun flea, conservative for the noun Republican, and funny for the noun clown. A selectional attribute of this kind is never calibrated against the noun itself, but always against the next higher unit in the taxonomic hierarchy. In the phrases of (23), for example, rats are inherently big with respect to mouse-like animals, fleas are inherently little with respect to insects, Republicans are inherently conservative with respect to those who adhere to political parties, and clowns are inherently funny with respect to people in general, or something of the sort. Why this should be so is evident on the basis of the earlier discussion. Clearly all members of the class specified by the noun are included within the class of things which have the quality specified by the selectional attribute: there are no members which do not have this quality. By the general principle described above, therefore, the calibration of the selectional attribute is automatically upped one notch.

It is interesting to note, incidentally, that the phrase a big elephant containing the normal attributive adjective is not tautologous. Within the N there does exist the selectional attribute big, which is always present with elephant, and there is another, separate attributive big. But the big within the N is calibrated against animals, while the big outside the N is calibrated against elephants. The first big tells us that the elephant is a big animal and the second that the -definite elephant we are talking about is big for an elephant. The tautology which is not present in this case, since there are two differently calibrated bigs, does show up, however, in a sentence like An elephant is big. Here the predicative big, since it is +generic with a +generic subject, must be calibrated against animals rather than elephants. It is, then, identical in this

respect with the big included as a selectional attribute within the N, and we are predicating something about an elephant which is already known from the N alone. The sentence The elephant is big, with a +definite -generic subject, is not similarly tautologous, since its subject allows the predicative big to be calibrated against elephants.

But to return to the possibility of highlighting a selectional attribute, we might say that highlight is a semantic unit which can be added to such a unit. Apparently this addition can take place only within a -generic N, for it is difficult to interpret the big in a +generic context such as Big elephants are dangerous as anything but a normal attributive adjective. When this unit highlight is contained within an N semantically, there is a postsemantic process which operates to remove the highlighted selectional attribute from the N and to place it in the position of an attributive adjective. The ambiguity of the phrases in (23) can, I think, be most satisfactorily explained in this way. It may be noted that a selectional unit cannot in general receive emphasis, a semantic phenomenon which is phonologically symbolized as strong stress. Among the selectional units associated with elephant, for example, which include such items as +common, +count, -bounded, and animal, as well as the selectional attribute big, we do not find any that can be emphasized. This fact explains why, when the phrases of (23) are pronounced with strong stress on the adjective, only the attributive meaning can be present.

In general a selectional attribute is not subject to the several kinds of inflection which are available for an adjective. No such unit can be comparative or superlative, for example, and the phrases of (25) cannot be interpreted as containing a highlighted selectional unit:

(25) a. a bigger rat

b. a littler flea

c. a more conservative Republican

d. a funnier clown

Furthermore, the inflection with very which is normally available to an adjective is, for the most part, ruled out. The phrases of (26) can also result only from an attributive adjective in the semantic structure:

(26) a. a very big rat

b. a very little flea

c. a very conservative Republican

d. a very funny clown

We do, however, have phrases such as those of (27) which can only be interpreted as containing a highlighted selectional attribute; they cannot contain an attributive adjective semantically:

(27) a. a great big rat

b. a tiny little flea

It appears, then, that at least big and little among the selectional attributes can be inflected for intensification when they are highlighted, and that such inflection shows up as great or tiny in the surface structure.

I should mention that what I have described here as highlighted selectional attributes have been differently regarded by other linguists. Jespersen, for example, called them 'non-restrictive adjuncts', and said that they serve an emotional function, as contrasted with the 'intellectual' function of restrictive adjuncts, or normal attributive adjectives (e.g. Jespersen 1964:91). He illustrated this point with the sentence Beautiful Evelyn Hope is dead!, which is perhaps emotional more because of the

predicate and the exclamation point than because of the phrase beautiful Evelyn Hope. The latter does, nevertheless, seem to represent an evaluative judgment of Evelyn Hope, namely that she is inherently beautiful. But this is what I have said about big elephant, conservative Republican, etc. They attribute inherent bigness to elephants, conservativeness to Republicans, etc. If such attribution carries emotional or evaluative overtones, that should not be surprising. The assignment of selectional attributes to a noun is something that can be manipulated; that is, the language can be used in such a way that a selectional attribute must be understood to belong to a noun which would not otherwise, perhaps, be thought to have it. Madison Avenue often tries to influence our evaluations in this way. If we read Give him smooth, mellow Old Crow for Christmas, we are led to believe that Old Crow is inherently smooth and mellow in the same way that elephants are inherently big. Jespersen's association of this phenomenon with nonrestrictive relative clauses seems correct, but a discussion would lead us too far beyond the central concerns of this paper.

His example regarding beautiful Evelyn Hope, however, raises another interesting point. Proper names are not subject to semantic cooccurrence with an attributive adjective; a -common noun does not tolerate that construction. Like all other nouns, however, a -common noun is associated with certain selectional units, among which may be a selectional attribute. The latter, then, is subject to highlighting. (Again, as in the present example, these selectional units may be manipulated by a speaker who wants us to know that the noun has a certain quality inherently.) In surface structure we often find -common nouns which appear to be in construction with attributive adjectives, but possibly all such cases result from

postsemantic modification of a highlighted selectional attribute. Poor Richard or lucky Pierre, then, result from the same process that produces the highlighted big elephant.

Predicate Nouns

Having considered the behavior of both attributive and predicative adjectives with relation to noun inflection, we should at this point give some attention to predicative (or 'predicate') nouns. Such nouns present what may appear to be a different kind of inflection from anything discussed so far. With a few special provisions, however, they can be accommodated within the framework already established. The following sentences will serve as a basis for discussion:

(28) a. Roger is a student.

b. Roger is the student (I told you about).

c. Helen and Roger are students.

d. Helen and Roger are the students (I told you about).

e. An ouzel is a bird.

f. An ouzel is the bird (I told you about).

g. Ouzels are birds.

h. Ouzels are the birds (I told you about).

i. The ouzel is a bird.

j. The ouzel is the bird (I told you about).

We are concerned with the inflections which are possible for the nouns student and bird when, as here, they form the predicate of a sentence. The basic semantic relation of predication is the same here as was illustrated on the left of Figure 7 above. That is, we are saying in each sentence that the class of things specified by the subject is included within the

class of things specified by the noun in the predicate. Roger, or Helen and Roger, belong within the class of students. The entire class of ouzels --if the subjects of (28e) through (28j) are all understood as +generic-- belongs within the class of birds.

The subjects of some of these sentences are -plural while the subjects of others are +plural. We can see that the noun which occurs in the predicate repeats in each case the ±plural nature of the subject. This is a matter of agreement, and not something over which the speaker has a semantic choice. In addition, however, we can see that the predicate nouns are inflected for -definite or +definite. The odd sentences in (28) are all -definite and the even ones are all +definite. Here the choice is up to the speaker within the semantic structure, to the same extent that the choice of ±definite is up to the speaker for any noun. If the speaker wants to communicate that the subject noun represents a particular subset of the predicate noun which is known to both him and the hearer--identified through either linguistic or nonlinguistic context--then he inflects the predicate noun as +definite. Otherwise he inflects it as -definite. The parenthetical clauses added to the even sentences in (28) are intended to illustrate a possible context within which the speaker might choose to inflect the predicate noun as +definite, although to convey a different meaning he could just as well inflect it as -definite in the same context.

A predicate noun, then, is unusually restricted in the semantic inflection which is possible for it. Such a noun is, in fact, subject to semantic structure rule (S1) and to no other:

(S1) N $\dashrightarrow$ +definite/+common

(All such nouns are +common.) It may be either ±definite, but inflection

as to ±generic or ±aggregate is ruled out and ±plural is added by agreement with the subject. Subsequent to this agreement we have a noun which is inflected in one of the four ways indicated on the left of Figure 8, with the postsemantic rules (T1) and (T2), stated earlier, responsible for the conversion into the postsemantic structures shown. It is gratifying that (T1) and the treatment of predicate nouns just outlined should support each other in this way, although not too much weight should be given to a tentative formalism.

[-definite, -plural]	→	[-definite, -plural]	→ a --	(28a,e,i)
[+definite, -plural]	→	+definite	→ the --	(28b,f,j)
[-definite, +plural]	→	+plural	→ --s	(28c,g)
[+definite, +plural]	→	[+definite, +plural]	→ the --s	(28d,h)

Figure 8

Quantifiers

Finally, a word needs to be said concerning the place of so-called quantifiers, elements like all, some, any, every, each, certain, a few, etc., within the framework of semantic structure as envisaged above. These elements are intimately related to the features of noun inflection which have been described. A detailed treatment of them would double the length of this paper, and I shall limit myself to suggesting their general place in the picture so far established.

Quantifiers serve to intensify, limit, or qualify in some other way the several noun inflections that have been discussed. For example, all

elephants means essentially the same thing as elephants (+generic +plural):

(29) a. Elephants like peanuts.

b. All elephants like peanuts.

What all seems to do is to add emphasis to the fact that the entire class of elephants is involved. We know this implicitly in (29a), but (29b) makes it explicit. The function of any in (30b) is similar:

(30) a. An elephant likes peanuts.

b. Any elephant likes peanuts.

It is implicit in an elephant (+generic -aggregate -plural) that we are talking about any member of the class of elephants, but the addition of any in (30b) explicitly emphasizes this fact. If all quantifiers did only this, it would be enough to regard them simply as optional intensifiers capable of being added to noun inflections. Quantifiers do, however, perform other functions. For example, some can be added to an inflection which is -definite and -generic. With a verb that is -generic it also seems only to intensify the inflectional meaning:

(31) a. An elephant stepped on my car.

b. Some elephant stepped on my car.

c. (Sm) elephants stepped on my car.

d. Some elephants stepped on my car.

(Quantifiers, perhaps in keeping with their intensifying function, are never unstressed, whereas sm always is.) The subjects of (31b,d), however, unlike those of (31a,c), can also occur with a V that is +generic:

(32) a. Some elephant likes peanuts.

b. Some elephants like peanuts.

From these examples it appears that some performs a role similar to that of +definite: it overrides the necessity of an N to agree with its V as to the ±generic distinction. Thus, the subjects of (32) are -generic while the V is +generic, and this is possible only because these subjects contain some, just as it is possible for the subjects of (33) to be -generic even though the V is +generic, just because they contain +definite:

(33) a. The elephant (+definite -generic) likes peanuts.

b. The elephants like peanuts.

But in addition to intensifying the meaning of an inflection, and in some cases removing the necessity for ±generic agreement with the V, a quantifier contributes in most if not all cases a unique meaning of its own. That this is so can be seen in a comparison of the following sentences:

(34) a. (Sm) elephants stepped on my car.

b. Some elephants stepped on my car.

c. Certain elephants stepped on my car.

d. A few elephants stepped on my car.

In all these sentences the subject is -definite -generic +plural. Clearly, however, something additional is contributed by some, certain, and a few. With some there is an explicit vagueness as to the identity of the elephants, while with certain their identity is more clearly pinpointed; presumably it is well known to the speaker, although not to the hearer. With a few there is the added information that this is a relatively small subset of the class of elephants. It is, incidentally, possible for some quantifiers to cooccur: a certain few elephants.

We have seen that under certain conditions it is possible for a -generic

N to occur with a +generic V. Such conditions include the presence within the N of +definite or a quantifier like some, certain, or a few:

(35) a. Some elephants like peanuts.

b. Certain elephants like peanuts.

c. A few elephants like peanuts.

On the other hand, it is apparently never possible for a +generic N to occur with a -generic V. If the V is -generic, the N must always agree with it in this respect; there is no inflectional unit or quantifier that will override this necessity. It is this fact that produces the unsatisfactory effect of the following sentence:

(36) *Any elephant stepped on my car.

The presence of any requires that the N be +generic, but the -generic V requires that the N be -generic. The N is thus pulled in two irreconcilable directions.

It happens frequently that an N which contains a quantifier is modified by an attributive phrase in such a way that the domain on which the quantifier operates is not the entire class of objects specified by the noun, but rather a +definite subset of that class. This kind of modification is present, for example, in the following sentences:

(37) a. All (of) the elephants are big.

b. All (of) the elephants stepped on my car.

c. Some of the elephants are big.

d. Some of the elephants stepped on my car.

e. Any of the elephants is big.

I believe that the semantic structure of the subjects of these sentences is such as would, if reflected directly in the surface structure, appear

there as the following:

(38) a. All elephants of the elephants ... (37a,b)

b. Some elephants of the elephants ... (37c,d)

c. Any elephant of the elephants ... (37e)

The subjects of these sentences are basically all elephants, some elephants, and any elephants, containing quantifiers as discussed above, but these N's are modified by the prepositional phrase, of the elephants. The effect of the modification is to make the noun--the lexical unit within the first N--denote not its total class, but that subset of the class specified by the prepositional phrase, namely the +definite +plural subset. Postsemantically the first noun of the phrases in (38) is deleted. We may also note that of is optionally deleted after all, although it must be retained after some or any.

Several additional facts about sentences like those in (37) can be observed. The N which is the subject of (37e) is +generic. It will not, therefore, be found together with a -generic V:

(39) *Any of the elephants stepped on my car.

This sentence is as unsatisfactory as sentence (36), and for the same reason. On the other hand, (37d) is quite acceptable, since the subject N, containing some, is -generic. The question arises why (37b) is also acceptable: All (of) the elephants stepped on my car, since all, like any, requires a +generic inflection. We might have predicted that (37b) would be as odd as (36) or (39), but it is not. The answer to this problem lies, I think, in the particular meaning of all. Since it emphasizes the totality of the class, the meaning of all (of) the elephants turns out to coincide with the meaning of the elephants. Since the latter is -generic, the former is

equivalent to something that is -generic and is apparently for that reason able to occur as the subject of a -generic V.

We might last of all consider the way in which big is calibrated in sentences like (37a,c,e). Evidently bigness here is with reference to the norm for elephants, regardless of whether the subject N is +generic (37a,e) or -generic (37c). The reason is not hard to find: the subject has been limited by the attributive phrase to a subset of elephants, so that big can be and is calibrated against the total set. The situation which forces its calibration against something larger is not present here, as it is in (40):

(40) (All) elephants are big.

Much more could be said on the subject of quantifiers, as on all the other subjects which have been introduced in this paper. I have not intended, however, to provide an exhaustive description of even one aspect of English structure, but rather to present a limited demonstration that a description in generative semantic terms is possible--and not only possible, but infinitely more revealing than a description in terms of syntax. I submit that the kind of treatment of noun inflection outlined above tells us so much more about English than a statement like NP → Det + N that there is no need for me to belabor the comparison. More sophisticated treatments have, of course, been attempted within the generative syntactic framework (Baker 1966 and Postal 1966 provide examples), but it seems to me that they cannot help but be fatally handicapped by a fancied obligation to find 'syntactic justification' for every statement that is made. Semantic facts are as factual as phonetic ones. It is only through semantics and phonetics that a linguistic description can be tied to a firm and undeniable empirical base. To make semantics a weak step-sister of syntax

is to reverse completely the true state of affairs. Preoccupation with syntax is a stubborn legacy of the distorted perspective on language which was ascendant during the so-called 'structuralist' period. Semantic observation is admittedly difficult, perhaps an order of magnitude more difficult than phonetic observation. Some of the observations on which I have based this paper may well turn out to be false. Certainly there must be relevant facts I have missed, and some of them may force a serious revision of the descriptive apparatus tentatively suggested. If so, it is not a sign that the task is hopeless, but only one more indication that a great deal of hard work is called for before we will know more accurately what English--or any other language--is really like.

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To stimulate and improve the quality of our research activities, we have initiated a series of 'Monthly Internal Memoranda'. The first of these Memoranda appeared in February, 1968. Communications range from a few paragraphs outlining a problem to be studied to the prepublication draft of a research paper. Contents so far:

February, 1968: William S-Y. Wang. Remarks on phonological change; Peter F. MacNeilage. (1) Plan for research on the motor control of the syllable. (2) Some comments on the motor control of the rate of speech; Anatole Lyovin. Summary of the Progress report on the coding of the Hànyǔ fangyin zìhuì (a Chinese dialect dictionary); Robert C. Hollow, Jr. Sound changes in Common Dakota; Burckhard Mohr. A functional model of speech production. Richard Applegate. A preliminary report on delayed auditory feedback; Marvin Kramer. Consistency in individual speech; Margaret Ann Lauritsen. Danish stød; Kyungnyun Kim. A problem of Korean morphophonemics; Louise Pescetta. A typology of sound change; Hsin-i Hsieh. Alternative rules for vowel raising; Betty Shefts Chang. A projected study of Tibetan tones; C. Douglas Johnson. The case for weak disjunctive ordering.

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